

TWO NEW SPECIES OF THE GENUS *DICTYOPHARINA* MELICHAR (HEMIPTERA, FULGOROIDEA, DICTYOPHARIDAE) FROM SOUTHEAST ASIA

SONG Zhi-Shun^{1, 2}, LIANG Ai-Ping^{1*}

1. Institute of Zoology, Chinese Academy of Sciences, Beijing 100080, China

2. Graduate School, Chinese Academy of Sciences, Beijing 100039, China

Abstract Two new species of the genus *Dictyopharina* (Hemiptera, Fulgoroidea, Dictyopharidae), *D. longicephala* sp. nov. and *D. pahangensis* sp. nov. are described and illustrated from Southeast Asia. The type specimens are deposited in the Bernice P. Bishop Museum (BPBM), Honolulu, Hawaii, USA and Institute of Zoology, Chinese Academy of Sciences (IZCAS), Beijing, China.

Key words Hemiptera, Dictyopharidae, *Dictyopharina*, new species, Southeast Asia.

The genus *Dictyopharina* was established by Melichar in 1903 for *D. viridissima* Melichar from Sri Lanka. Distant (1906) redescribed and illustrated this genus and the type species from India, and added the second species of the genus, *D. consanguinea* from Burma. In his dictyopharid monograph Melichar (1912) recorded the genus and the two above species. Song & Liang (2006) redefined the diagnostic characters of the genus, redescribed *D. viridissima* Melichar from Sri Lanka and India, and described and illustrated two new species, *D. octaprotrusa* Song & Liang and *D. sichuanensis* Song & Liang from Southern China.

In this paper, two new *Dictyopharina* species from Southeast Asia, *D. longicephala* sp. nov. and *D. pahangensis* sp. nov., are described and illustrated. The specimens studied are deposited in the Bernice P. Bishop Museum (BPBM), Honolulu, Hawaii, USA and Institute of Zoology, Chinese Academy of Sciences (IZCAS), Beijing, China.

Dictyopharina longicephala **sp. nov.** (Figs. 1–10, 21)

Description. General color viridescent in most specimens, or ochraceous in discoloured ones. ♂, length (from apex of cephalic process to tip of forewings) 13.9–15.1 mm; length of head 1.9–2.4 mm, width (including eyes) 1.7–1.9 mm; length of forewings 11.0–11.4 mm.

Head (Figs. 1–3, 21) elongate and broad,

produced in a more elongate cephalic process. Vertex (Fig. 1) with ratio of length to width between eyes 1.9 : 1.0; anterior margin somewhat convex, lateral carinate margins converging anteriorly, posterior margin slightly concave; median longitudinal carina distinct and complete, lateral oblique depressions indistinct at base. Frons (Fig. 3) broad and elongate, with ratio of length to width 2.5 : 1.0; anterior margin arched, lateral carinate margins nearly parallel, posterior margin slightly concave; median longitudinal carina distinct, lateral longitudinal carinae converging posteriorly and approaching frontotemporal suture. Eyes (Figs. 1–3, 21) oval, brown. Ocelli (Figs. 2) relatively large, reddish. Antennae (Figs. 1–3) with very small scape; pedicel large and subglobose, with more than 50 distinct sensory plaque organs distributed over entire surface; flagellum long, setuliform.

Pronotum (Figs. 1–2, 21) distinctly shorter than mesonotum in middle line, narrow anteriorly and broad posteriorly; disc broad, slightly arched in middle front, lateral marginal areas straight and sloping, posterior margin angulately concave about 115°; median longitudinal carina distinct, lateral discal carinae obscure and only elevated anteriorly, lateral depressions big and distinct. Mesonotum (Fig. 1) tricarinate on disc; lateral carinae somewhat curving anteriorly towards median carina, not forked to front. Forewings (Fig. 4) hyaline, ratio of length to width about 3 : 1; Sc slightly sinuated distad of Sc+R fork, stigma long with 4–6 cells; apical cells about 16.

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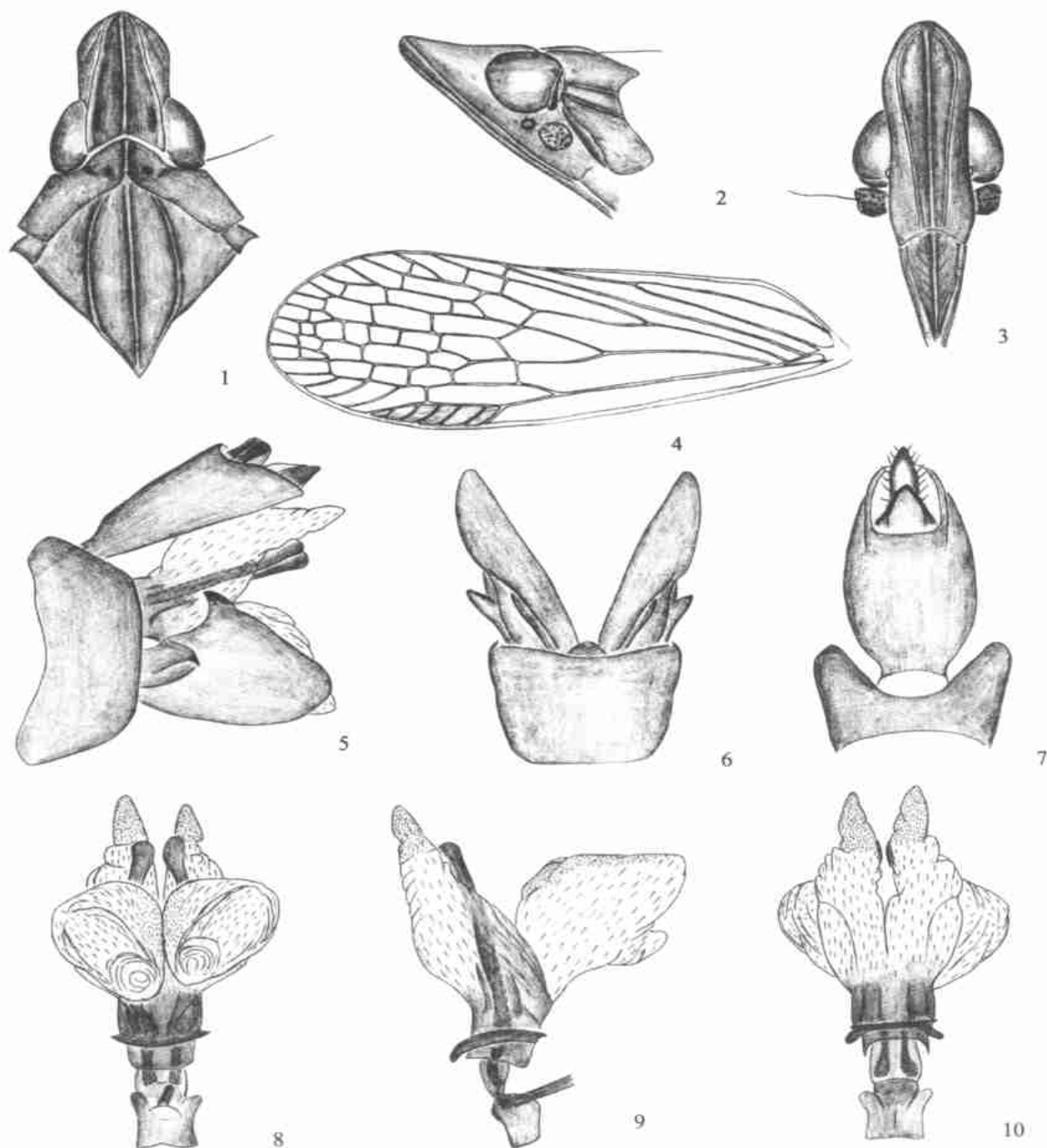
* Corresponding author, E-mail: liangap@ioz.ac.cn

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Legs elongate, fore femora with a short and blunt spine near apex; hind tibiae with 5-6 lateral spines, spinal formula 8- (9-10) - (9-10).

Male genitalia with pygofer (Figs. 5-7) narrow and high in lateral view, posterior margin straight and curved anteriorly near $1/3$ apex to accommodate anal tube, length ratio of upper margin to lower margin

about 1: 3; in dorsal view dorsal margin excavated, dorsal lateral margin angular; in ventral view dorsal margin slightly concave, lateral margins slightly converging anteriorly. Anal tube (Figs. 5, 7) large and long in dorsal view, ratio of length to width at middle about 2: 1; in lateral view anal tube triangle, narrow and long. Anal style (Figs. 5, 7) narrow and



Figs. 1-10. *Dictyopharina longicephala* sp. nov. male, holotype. 1. Head, pronotum and mesonotum (dorsal view). 2. Head and pronotum (lateral view). 3. Head (ventral view). 4. Right forewing. 5. Genitalia (lateral view). 6. Pygofer and parameres (ventral view). 7. Pygofer and anal tube (dorsal view). 8. Aedeagus (ventral view). 9. Ditto (lateral view). 10. Ditto (dorsal view).

long. Paramere (Figs 5-6) large and broad in lateral view, apex expanded and broad with a stout, inwardly curved toothed process; middle with a stout, ventrad process; in ventral view genital styles symmetrical, with numerous spiniform setae on inner surface. Aedeagus (Figs. 8-10) stout and large; phallobase cylindrical, sclerotized and pigmented with 2 pairs of membranous sac-like processes; ventral pair large and stout, produced ventrad, dorsopleural region with numerous short setae, ventral region produced in a pair of smaller processes; dorsal pair stout and long, produced posteriorly in lateral view, apex with numerous short setae; phalli forked at base, with a pair of parallel slender processes produced pigmented and sclerotized at apex.

Holotype ♂, Malaysia, North Borneo, N. of Kalabakan, Forest Camp, 19 km, 11 Nov. 1962, K. J. Kuncheria (BPBM). Paratypes, Laos: 1 ♂, Nongtevada, 25 Feb. 1966; Malaysia: 1 ♂, North Borneo, N. of Kakabakan, Forest Camp, 19 km, 31 Nov. 1962, K. J. Kuncheria; 1 ♂, Gomak For. Res. Nr. Kuala Lumpur, 28 Dec. 1958, L. W. Quate; 1 ♂, Sarawak, Sarikei Dist. Rejang Delta, 15-26 July 1958, T. C. Maa; Philippines: 1 ♂, Mindanao, Agusan, Los Arcos, 19-23 Nov. 1959, L. W. Quate; 2 ♂♂, Busuang Island, 4km, N. San Nicolas, 23 May 1962, M. Thompson; 1 ♂, Mindanao, Surigao del Norte Prov. Mainit, 26-30 Nov. 1962, L. Quate and C. Yoshimoto (BPBM, IZCAS).

Etymology. This new species is named for its elongate cephalic process.

Remarks. The new species differs from all other described *Dictyopharina* species in the more elongate head. It can be distinguished from *D. octaprotrusa* from southern China by the two, instead of four, pairs of membranous sac-like processes on the aedeagus.

Distribution. Laos, Malaysia, Philippines.

Dictyopharina pahangensis **sp. nov.** (Figs 11-20, 22)

Description. General color ochraceous in discoloured specimen. ♂, length (from apex of cephalic process to tip of forewings) 15.3 mm; length of head 1.6 mm, width (including eyes) 1.9 mm; length of forewings 12.7 mm.

Head (Figs 11-13, 22) relatively elongate and broad, produced in a cephalic process. Vertex (Fig. 11) with ratio of length to width between eyes 1.5: 1.0; anterior margin somewhat convex, lateral

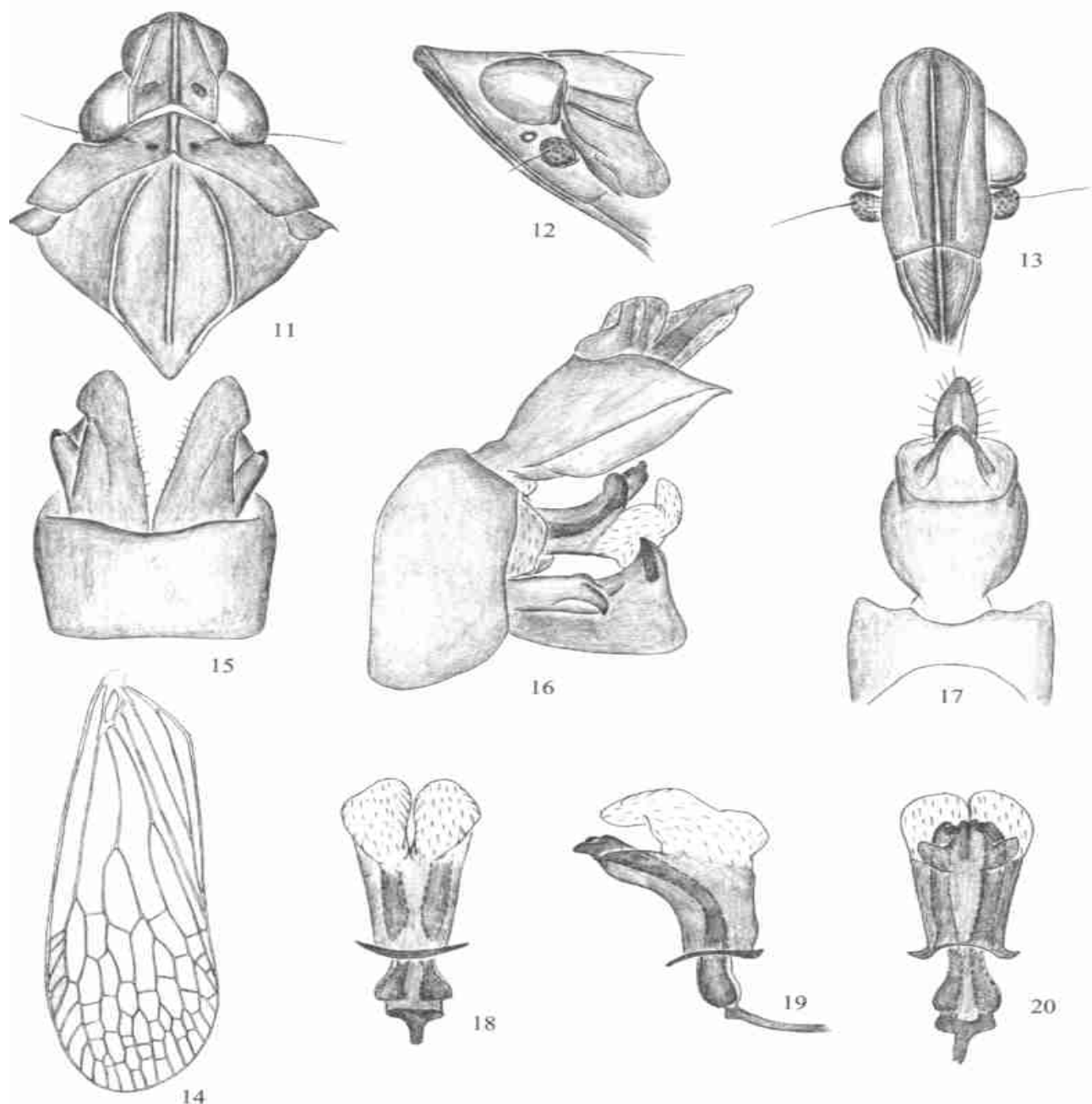
carinate margins converging anteriorly, posterior margin slightly concave; median longitudinal carina distinct and complete, lateral oblique depressions indistinct at base. Frons (Fig. 13) broad and elongate, with ratio of length to width 2.4: 1.0; anterior margin arched, lateral carinate margins nearly parallel, posterior margin slightly concave; median longitudinal carina distinct, lateral longitudinal carinae converging posteriorly and approaching frontoclypeal suture. Eyes (Figs. 11-13, 22) oval, brown. Ocelli relatively large, reddish. Antennae (Figs 11-13) with very small scape; pedicel large and subglobose, with more than 50 distinct sensory plaque organs distributed over entire surface; flagellum long, setuliform.

Pronotum (Figs. 11-12, 22) distinctly shorter than mesonotum in middle line, narrow anteriorly and broad posteriorly; disc broad, slightly arched in middle front, lateral marginal areas straight and sloping, posterior margin angulately concave about 115°; median longitudinal carina distinct, lateral discal carinae obscure and only elevated anteriorly, lateral depressions big and distinct. Mesonotum (Figs 11) tricarinate on disc; lateral carinae somewhat curving anteriorly towards median carina, not forked to front. Forewings (Figs. 14) hyaline, ratio of length to width about 3: 1; Sc slightly sinuated distad of Sc+R fork, stigma long with 4 cells; apical cells about 16. Legs elongate, fore femora with a short and blunt spine near apex; hind tibiae with 5 lateral spines, spinal formula 8- (9-10) - (9-10).

Male genitalia with pygofer (Figs. 15-17) broad and high in lateral view, posterior margin straight and curved anteriorly near 1/5 apex to accommodate anal tube, length ratio of upper margin to lower margin about 1: 3; in dorsal view dorsal margin slightly excavated, dorsal lateral margin not angular; in ventral view dorsal margin slightly concave, lateral margins nearly parallel. Anal tube (Figs. 16-17) large and stout in dorsal view, ratio of length to width at middle about 1.5: 1.0; in lateral view anal tube triangle, broad and stout. Anal style (Figs. 16-17) stout and long. Paramere (Figs. 15-16) relatively small and narrow in lateral view, apex expanded with an inwardly curved toothed process which developing a longitudinal, pigmented and sclerotized tooth on inner surfaces; middle with a stout, ventrad process; in ventral view genital style symmetrical, with numerous spiniform setae on inner surfaces. Aedeagus (Figs. 18-20) short and small; phallobase cylindrical, sclerotized and pigmented, ventrally with a pair of membranous

sac-like processes, and dorsally with a pair of sclerotized, pigmented and biforked processes; phalli

forked at base, with a pair of parallel processes, pigmented and sclerotized at apex.



Figs 11-20. *Dictyopharina pahangensis* sp. nov. male, holotype. 11. Head, pronotum and mesonotum (dorsal view). 12. Head and pronotum (lateral view). 13. Head (ventral view). 14. Left forewing. 15. Pygofer and parameres (ventral view). 16. Genitalia (lateral view). 17. Pygofer and anal tube (dorsal view). 18. Aedeagus (ventral view). 19. Ditto (lateral view). 20. Ditto (dorsal view).

Holotype ♂, Malaysia, Pahang, King George V Nat'l, Park Kuala Tahan, 12-15 Dec. 1958, J. L. Gressitt and T. C. Maa (BPBM).

Etymology. This new species is named for its occurrence in Pahang Province of Malaysia.

Remarks. The species is similar to *D. sichuanensis* from Sichuan Province, China, but can

be distinguished by the aedeagus which is smaller and bears a pair of membranous sac-like processes. It can be separated from *D. viridissima* by the more elongate head, the lack of a process on the posterior margin of the pygofer, and the apex of paramere with one toothed process which developing a longitudinal, pigmented and sclerotized tooth on the inner surfaces.



Fig 21. *Dictyopharina longicephala* sp. nov. (♂, paratype, Philippines). Fig 22. *Dictyopharina pahangensis* sp. nov. (♂, holotype, Malaysia).

Distribution. Malaysia.

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东南亚短象蜡蝉属二新种（半翅目，蜡蝉总科，象蜡蝉科）

宋志顺^{1,2} 梁爱萍^{1*}

1. 中国科学院动物研究所 北京 100080
2. 中国科学院研究生院 北京 100039

摘 要 记述了采自东南亚地区象蜡蝉科 Dictyopharidae 短象蜡蝉属 *Dictyopharina* 2 新种，长头短象蜡蝉 *D. longicephala* sp. nov. 和彭亨短象蜡蝉 *D. pahangensis* sp. nov.。研究标本保存于美国 Bernice P. Bishop 博物馆和中国科学院动物研究所。

关键词 半翅目，象蜡蝉科，短象蜡蝉属，新种，东南亚。

中图分类号 Q969.35

* 通讯作者.